

Optimizing Small Grain Yields

Small Grains Update-SJV



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UCCE - Tulare/Kings Co.**

2013 Small Grains Approx. 1, 080,000 A

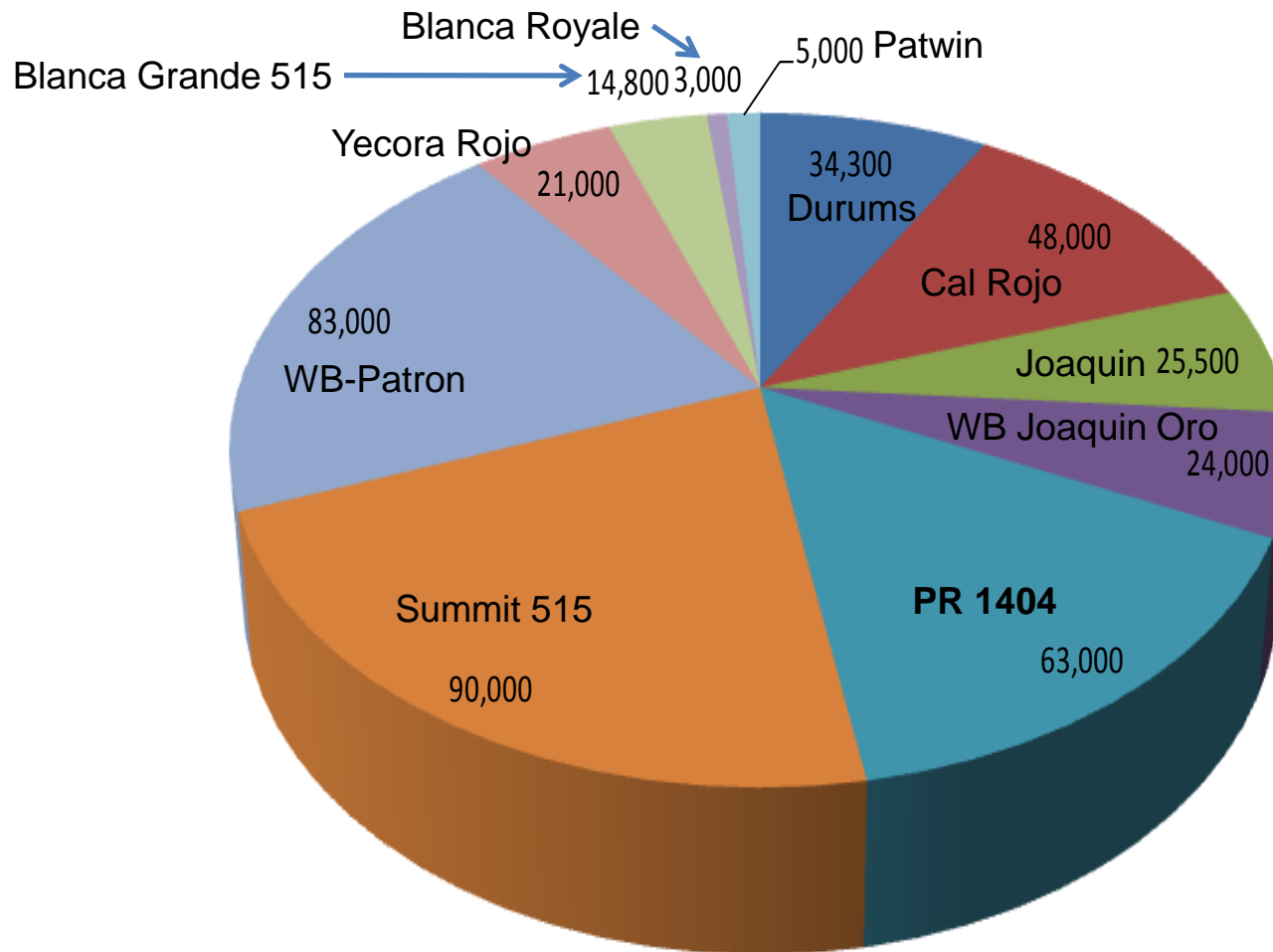
Wheat ———> 690,000
Triticale ———> 100,000
Barley ———> 90,000
Oats ———> 200,000



2014 Small Grains Approx. 950,000 A

Wheat ———> 560,000
Triticale ———> 100,000
Barley ———> 90,000
Oats ———> 200,000

CA Wheat Estimates - 2014





UC REGIONAL TRIALS

Jackson, Wright, Dubcovsky, Bañuelos, Rios

ENTRY	2012		2013	2014	
	Fresno	Kings	Fresno	Fresno	Kings
Joaquin	5120	6200	4940	5260	6830
Joaquin Oro	5090	5330	4400	4930	5660
PR 1404	-	-	5610	5550	6710
Cal Rojo	4490	-	5690	5080	6560
Blanca Royale	5290	6500	5590	5430	6600
Ultra	-	-	6320	6120	6510
WB-Patron	5310	6880	5860	5640	6300
Redwing	4760	-	6250	5550	7000
Patwin	-	6670	5870	5340	6130
Patwin 515	5260	6960	5520	5470	7180
Summit 515	-	-	5700	5000	6090
Blanca Grande 515	5160	6400	5590	5960	6680

UC Regional Trials – **Stripe Rust**

Jackson, Wright, Dubcovsky, Bañuelos

ENTRY	2012		2013	2014	
	Fresno	Kings	Fresno	Fresno	Kings
Joaquin	7.5	7.5	6.5	4.8	5.3
Joaquin Oro	1.0	1.0	1.0	1.0	1.0
PR 1404	-	-	1.0	1.0	1.0
Cal Rojo	1.0	1.0	1.0	1.0	1.0
Blanca Royale	1.0	1.0	1.0	1.0	1.0
Ultra	-	-	1.0	1.0	1.0
WB-Patron	1.0	1.0	1.0	1.0	1.0
Redwing	1.8	3.5	1.0	1.0	1.0
Patwin	-	1.0	1.0	1.0	1.0
Patwin 515	1.3	1.5	1.0	1.0	1.0
Summit 515	-	-	1.0	1.0	1.0
Blanca Grande 515	1.0	1.0	1.0	1.0	1.0







Small Grain Silage Variety Trial 2012

Tulare/Kings Co. - Wright, Banuelos, Silva-del-Rio, Collar

Variety	Type	Harvest % H ₂ O	Tons/A 70% H ₂ O	Height (in)	Lodging %	TDN
Pacheco	T	55.1	29.0	48	0	54.7
Camelot	Beardless T	57.3	28.2	46	0	57.6
Redwing	HRW	45.9	26.8	39	0	57.0
Summit 515	RW	50.1	26.7	42	0	55.3
Tricale 158 EP	T	60.7	25.5	43	0	58.3
Patwin	HWW	56.7	24.8	41	1	56.0
Joaquin	RW	53.6	24.5	44	5	54.5
Tricale 115	T	56.3	24.0	43	0	58.1
PR 1404	Beardless HRW	57.9	23.9	43	22	58.0
Patron	HRW	50.3	23.9	47	1	56.3
Ultra	HRW	54.1	23.7	39	0	56.3
Bolt	T	59.7	23.5	53	49	57.0
Cal Rojo	HRW	49.9	22.2	39	0	56.4
90314	HRW	50.4	20.5	43	0	56.1

Small Grain Silage Variety Trial 2013

Tulare/Kings Co. - Wright, Banuelos, Souza, Collar

Variety	Type	Harvest % H ₂ O	Tons/A 70% H ₂ O	Lodging %	TDN
Summit 515	HRW	59.6	30.4	3	59.4
Blanca Royale	HWW	59.3	28.1	28	60.8
Cal Rojo	HRW	57.2	28.0	1	59.7
Ultra	HRW	60.8	27.8	6	59.5
Patwin	HWW	63.7	27.6	3	59.2
SY 314	HRW	59.1	27.4	0	59.1
WB-Patron	Beardless HRW	61.4	26.9	46	60.1
Tricale 158 EP	T	68.7	26.2	9	58.2
Blanca Grande 515	HWW	56.2	25.8	64	59.4
Tricale 115	T	66.1	25.6	0	60.9
FV 2808	Beardless W	67.2	24.6	74	57.9

Small Grain Silage Variety Trial 2014

Tulare/Kings Co. - Wright, Banuelos, Souza, Collar

Variety	Type	Harvest % H ₂ O	Tons/A 70% H ₂ O	Height (in)	Lodging %	TDN
Patwin	HWW	65.9	24.9	35	34	61.8
Triticale 115	T	71.0	24.0	40	0	62.7
Pacheco	T	70.1	23.1	46	45	63.8
Triticale 158 EP	T	73.5	23.1	42	1	61.3
Triticale 105	T	70.1	22.9	46	62	63.3
SY 314	HRW	63.8	22.7	37	67	59.8
Joaquin Oro	HRW	59.8	22.5	36	47	63.0
Summit 515	HRW	64.5	22.3	36	63	63.5
Cal Rojo	HRW	63.5	22.2	33	54	63.8
WB Patron	Beardless HRW	63.9	21.8	40	69	62.9
Camelot	Beardless T	68.9	21.2	43	55	62.4
LC Star	HWW	66.9	21.0	38	77	59.8
PR 1404	Beardless HRW	69.4	20.5	40	76	61.0
Blanca Royale	HWW	65.7	19.8	36	58	62.8
SY VACA	Beardless SRW	72.4	19.7	40	32	57.6
Ultra	HRW	66.6	19.4	35	78	62.1
Blanca Grande 515	HWW	62.7	19.3	37	78	63.1

Small Grain Silage Variety Trial 2013

Tulare/Kings Co. - Wright, Banuelos, Souza, Collar

Variety	ADF	NDF	Lignin	TDN	Ash
Summit 515	32.1	47.3	4.7	59.4	10.7
Blanca Royale	29.6	44.7	4.4	60.8	10.4
Cal Rojo	31.0	45.7	4.4	59.7	11.4
Ultra	31.0	45.8	4.5	59.5	11.7
Patwin	32.0	47.1	4.5	59.2	11.6
SY 314	31.9	47.1	4.5	59.1	11.4
WB-Patron	31.0	46.1	4.6	60.1	10.4
Tricale 158 EP	35.2	51.8	5.3	58.2	10.3
Blanca Grande 515	30.0	44.9	4.4	59.4	11.7
Tricale 115	31.8	47.6	4.9	60.9	9.6
FV 2808 (Beardless)	33.9	48.1	4.8	57.9	12.6

Small Grain Silage Variety Trial 2014

Tulare/Kings Co. - Wright, Banuelos, Souza, Collar

Variety	Protein % DM	ADF	NDF	Lignin	Ash	TDN
Summit 515	13.6	28.1	43.5	3.8	9.5	63.5
Blanca Grande 515	13.4	28.4	43.9	3.9	9.5	63.1
Ultra	13.2	29.7	45.5	4.2	9.8	62.1
Cal Rojo	12.5	27.8	43.0	3.8	9.7	63.8
SY VACA	13.4	36.5	54.3	4.9	11.5	57.6
Blanca Royale	12.6	29.1	45.0	4.1	9.4	62.8
Patwin	12.8	30.7	47.0	4.1	10.0	61.8
LC Star	12.4	33.2	49.8	4.8	10.2	59.8
SY 314	12.2	31.9	48.0	4.4	10.9	59.8
WB Patron	12.6	29.7	45.7	4.1	9.2	62.9
PR 1404	12.9	31.8	48.1	4.4	10.3	61.0
Joaquin Oro	15.1	26.7	41.6	3.8	10.1	63.0
Pacheco	11.0	30.1	46.5	4.1	8.6	63.8
Camelot	11.3	31.9	49.0	4.6	8.3	62.4
Triticale 105	12.0	30.5	46.8	4.5	8.7	63.3
Triticale 115	10.4	30.6	46.6	4.5	9.1	62.7
Triticale 158 EP	10.7	33.3	50.7	4.9	8.6	61.3



**Rust
Management**

Select resistant or mod-resistant variety. Refer to the small grains website : cetulare.ucdavis.edu or (agric.ucdavis.edu/crops/cereals/cereal.htm)

Dirkwin

PR1404





Diversify your plantings. Plant > 1 variety or species in case new races of stripe rust pathogen show up.

Stripe Rust Resistance 2014

Highly Susceptible —————> **Anza, Joaquin, Mika, Triple IV**

Susceptible —————> **Pacheco**

Moderately Susceptible —————> **Redwing, Kronos, Duraking**

Moderately resistant —————> **PR 1404, Westmore, Ultra, Camelot, Crown, Platinum, Topper, Blanca Fuerte, Volante, Trical 105, Desert King HP**

Resistant —————> **Cal Rojo, Blanca Grande 515, Summit 515, Fortissimo, Lassik, Patwin, Patwin 515, Blanca Royale, WB-Rockland, Joaquin Oro**

4. Pay attention to stripe rust reports in other areas

- Spores are wind-borne & can be disseminated over long distances (hundreds of miles) to cause infection.
- The California Wheat Commission's Weekly Bulletin is a good source of this type of information.

5. Monitor weather conditions. Cool, wet conditions (50-60 F. with intermittent rain, fog, or dew) are most favorable for infection, spore production, & dispersal.

- Races of the stripe rust pathogen can cause disease at higher temperatures & drier conditions than in the past.

Apply fungicide before full heading, flowering

A trigger-point for fungicide application for effective disease control under conducive weather conditions is when 10% of plants show symptoms of infection or when 'hot spots' of disease are detected in the field.



Fungicides for Wheat

Stratego (Bayer) - No later than Feekes 10.5 (full heading, beginning of flowering) 10 oz. 30 days P.H.I.

Tilt (Syngenta) - No later than Feekes 10.5 (full heading, beginning of flowering) 4 oz. 30 days P.H.I.

Quadris (Syngenta) - No later than Feekes 10.5 (full heading, beginning of flowering) 4-12 oz. 14 days P.H.I.

Quilt (Syngenta) - No later than Feekes 10.5 (full heading, beginning of flowering) 10.5-14 oz. 30 days P.H.I.

Headline (BASF) - No later than Feekes 10.5 (full heading, beginning of flowering) 6-9 oz. 14 days P.H.I.

Fungicides

Tilt (*Propiconazole*) and **Quilt**

Rate: 2-4 floz

Mode of Action: Demethylation inhibitor (3)

Comments: **Wheat**, apply until Feekes growth stage 10.5 (full head emergence; **Barley**, apply until Feekes 9 growth stage (emergence of flag leaf ligule); Do Not exceed 4 floz/a/season

Stratego (*Trifloxystrobin/Propiconazole*)

Rate: Wheat 10 floz; Barley 7 floz

Mode of Action: Quinone outside inhibitor (11) and Demethylation inhibitor (3)

Comments: **Wheat**, Do not apply after Feekes growth stage 10.5 (full head emergence); Do not make more than 2 applications/season or apply within 35 days of harvest; Forage harvest after 30 days of application (Wheat/Barley); Hay harvest after 45 days of applications (Wheat/Barley); Forage/Hay not allowed to harvest after two applications or total of 20 floz/season; **Barley**, Apply before Feekes growth stage 8 (emergence of flag leaf ligule); Forage/Hay not allowed to harvest after two applications or total of 14 floz/season

Fungicides

Quadris (*Azoxystrobin*)

Rate: 6.2-10.8 floz

Mode of Action: Quinone outside inhibitor (11)

Comments: For barley and wheat; Do not apply after heading is completed (Feekes 10.5); Do not make more than 2 applications

Headline (*Pyraclostrobin*)

Rate: 9 floz

Mode of Action: Quinone outside inhibitor (11)

Comments: For barley, rye, triticale, and wheat; Do not apply to barley after 50% head emergence (Feekes 10.3); Do not apply to wheat after heading is completed (Feekes 10.5); Do not harvest wheat/barley hay/feed green-chopped wheat/barley within 14 days of last application; Do not make more than 2 applications

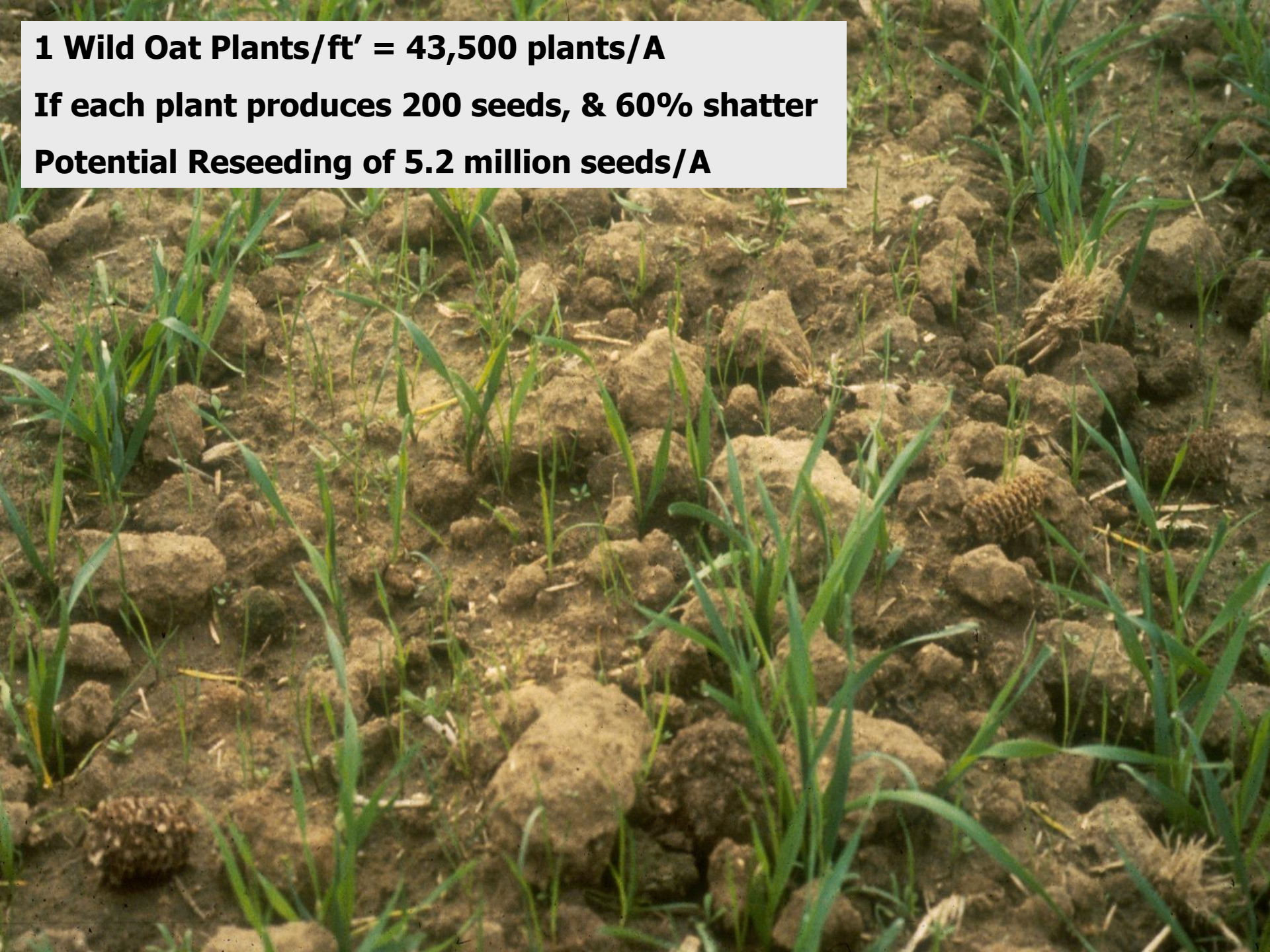
Small Grain Weed Control



1 Wild Oat Plants/ft' = 43,500 plants/A

If each plant produces 200 seeds, & 60% shatter

Potential Reseeding of 5.2 million seeds/A





Canary Grass
Wild Oats
Italian Ryegrass
Annual Bluegrass
Ripgut Brome
Foxtail Barley



Grass Control-Wheat, Barley

Axial- w. oats, I. ryegrass, suppression of canarygrass 1-6 lf. (no for Durums) tank mix with Express

Puma - w. oats, canarygrass. 2 lf-2 tiller, 2lf -5 lf. Tank mix with Buctril, wait 5 days between other herbicide app., do not tank mix with liquid fert.

Osprey- w. oats, a.rye, canarygrass, a.bluegrass, & mustard, w.radish, cheeseweed, chickweed, 1 lf to 2-tiller, tank mix w/Express, MCPA, & Buctril; causes crop injury; plantback cotton, dry beans, 90 days, corn 12 months

Prowl H20 - w. oats registration Postplant, Pre

Treflan - suppression of w. oats, canarygrass PPI at 2", plant below zone

Simplicity (Pyroxsulam) - w. oats, I. ryegrass, ripgut & chickweed, mustard, shepardspurse, nettle; 2 lf to 2 tiller; do not tank mix w/dicamba, 2,4-D or MCPA; plantback cotton, corn, dry beans 90 days. For wheat and Triticale.

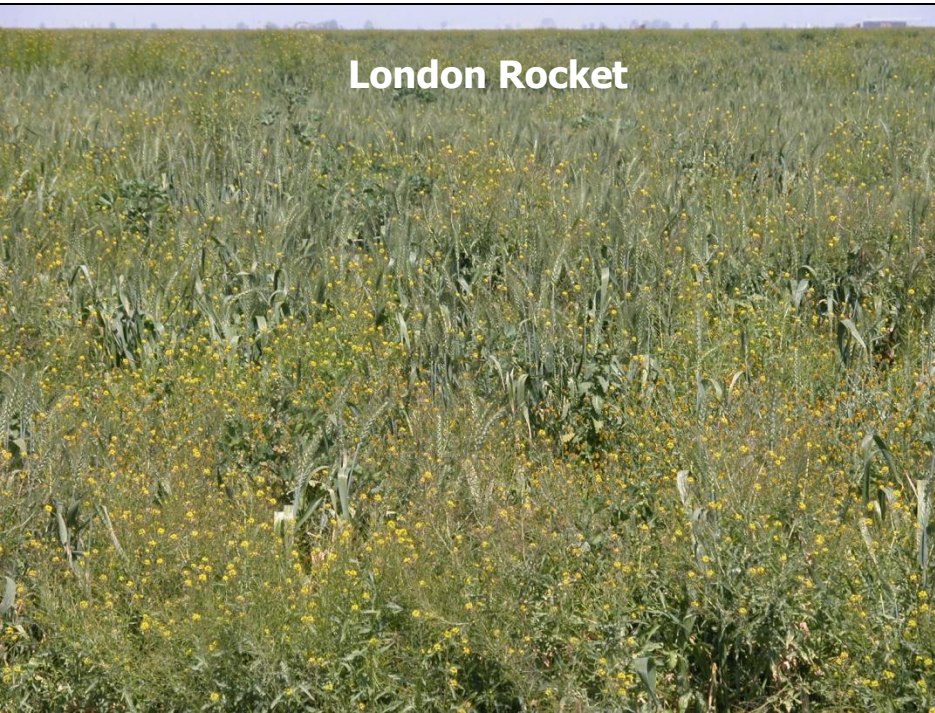




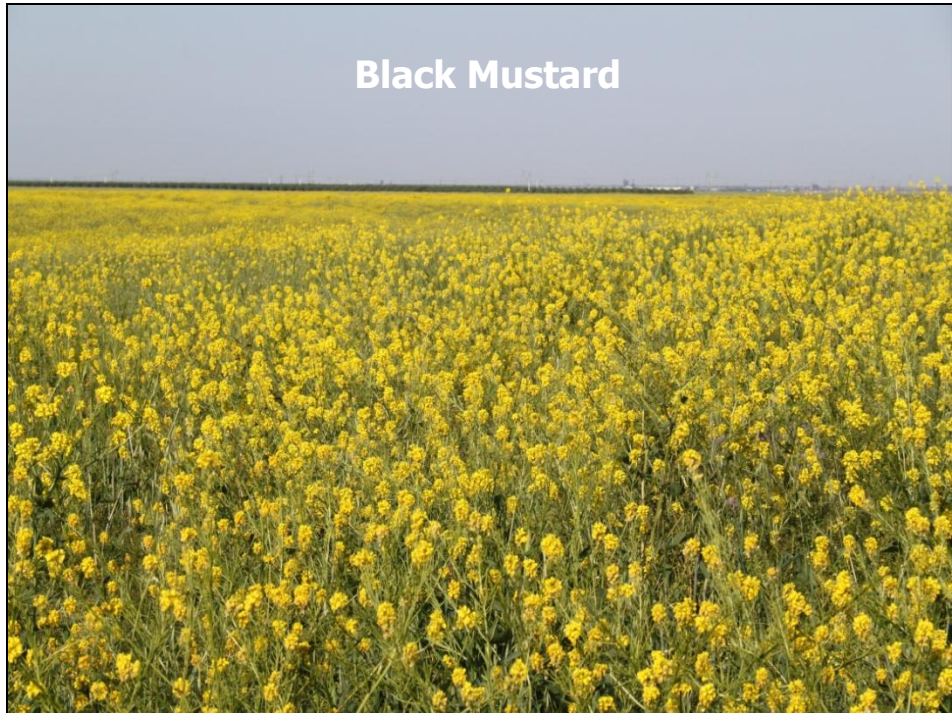
Coast Fiddleneck



Burning Nettle



London Rocket



Black Mustard

Wheat Broadleaf Control

MCPA Amine: mustards, shepherdspurse; easy on oats; apply crop 3-4 lf – boot stage

Clarity (*Dicamba*): mustards, malva, chickweed, shepherdspurse; apply crop before, during, after planting; weeds 2-3 lf stage; tank mix with MCPA, 2,4-D, Buctril, Express

2,4-D Amine: mustards, w. radish, shepherdspurse; apply crop fully tilled (4-8" tall) – boot stage

Buctril (*Bromoxynil*): fiddleneck, mustards, shepherdspurse; apply crop emergence – boot stage; tank mix with MCPA, 2, 4-D, Express

Shark (*Carfentrazone*): mustards, malva, fiddleneck, nettle; apply crop planting – jointing stage; weeds up to 4" tall; tank mix with 2,4-D, MCPA

ET (*Pryflufen*): chickweed, malva, nettle, w. radish, shepherdspurse; apply crop emergence – before flag leaf; tank mix depends on other herbicides

Express (*Tribenuron*): chickweed, mustards, fiddleneck, shepherdspurse; apply crop 2 lf stage – before flag leaf; tank mix with MCPA, 2,4-D, Dicamba, Buctril, Shark, Axial